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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/570,837

03/06/2006

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00846-23343.PCT.US

8781

20551 7590 07/06/2007
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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT

PAPER NUMBER

3745

MAIL DATE

DELIVERY MODE

07/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/570,837

Applicant(s)

BLANCHARD ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 8, 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6-8-06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the disc surface with a random surface roughness (claim 2), the disc surface with a patterned surface roughness (claim 2), the opposing rotatable disc surfaces having the same surface roughness (claim 5), the opposing rotatable disc surfaces having different surface roughnesses (claim 5), the opposing rotatable disc surfaces being non-parallel (claim 5), at least one of the rotatable disc surfaces being non-planar (claim 5), the opposing rotatable disc surfaces being non-planar (claim 5), the discs being different diameters (claim 5), the inlet and outlet passages being perpendicular to the disc surface (claim 6), the inlet and outlet passages being inclined to the disc surface (claim 6), the hollow cavity of the shaft having an inner surface with a random surface roughness (claim 8), the hollow cavity of the shaft having an inner surface with a patterned surface roughness (claim 8), the impeller blade including a leading or trailing edge with a convex curvature (claim 11), the plurality of impeller blades with leading or trailing edges with the same surface roughness (claim 11), and the plurality of impeller blades with leading or trailing edges of different surface roughness (claim 11) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "48h" and "48i".

The drawings are objected to because figures 1a, 1b, 1c, 2b, 2c, 2d, 3a-3i 4b-4c, and 5a-5f are of poor quality, with blackened portions and lines that are faded.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) and 35 U.S.C. 365(c) or as follows:

Pertaining to 35 U.S.C. 119(e), it is noted that this application appears to claim subject matter disclosed in prior Provisional Applications No. 60/500,041 and 60/500,208, both filed September 4, 2003, and PCT/US04/28890. Pertaining to 35 U.S.C. 365(c), it is noted that this application appears to claim subject matter disclosed in prior Application No. PCT/US04/28890. A reference to the prior applications must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition

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to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

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The oath or declaration is defective because:

It does not state the various sections of 35 USC under which benefit is claimed based on PCT/US04/28890 and U.S. Provisional Applications 60/500,041 and 60/500,208.

Specification

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

The abstract of the disclosure is objected to because it includes the legal term “means” (line 1), which should not be included. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: Appropriate correction is required.

On page 15, line 17, “carrying” should be changed to -- carry --.

On page 17, line 17, “slots” (second occurrence) should be changed to -- slot --.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 2, lines 1-20, which recite “at least one feature selected from the group consisting of: ... a patterned surface roughness” has no antecedent basis in the specification for the underlined term.

Claim 3, lines 1-26, which recite “at least one feature selected from the group consisting of: ... at an inclined angle with respect to the rotatable disc surface” has no antecedent basis in the specification for the underlined term.

Claim 5, lines 2-14, which recite “at least one feature selected from the group consisting of: ... different diameters” has no antecedent basis in the specification for the underlined term.

Claim 8, lines 2-15, which recite “at least one feature selected from the group consisting of: ... a patterned surface roughness” has no antecedent basis in the specification for the underlined term.

Claim 9, lines 1-6, which recite “at least one feature selected from the group consisting of: ... length of the shaft” has no antecedent basis in the specification for the underlined term.

Claim 10, lines 2-3, which recite “at least one impeller blade formed within a circumference of the shaft” has no antecedent basis in the specification for the underlined term.

Claim 11, lines 2-17, which recite “at least one feature selected from the group consisting of: ... the hollow interior” has no antecedent basis in the specification for the underlined term.

Since many of the different features in a single group are conflicting/not possible in combination (see the claim rejections under 35 USC 112, second paragraph set forth later below), Applicant should carefully review claims 2-3, 5, and 8-11 as to whether or not the different features in a single group are meant to be in combination with each other. For the features in a single group which are meant to be in combination with each other and are not conflicting/impossible, the specification may be amended accordingly to provide proper antecedent basis for the claimed subject matter.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-3, 5, 8, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2, lines 15-16 and 17-18 contain features that are conflicting/not possible. It is not possible for the disc surface to be both cone shaped and curve shaped, since these are different embodiments. Claim 2, lines 19-20 contain features that are conflicting/not possible. It is not possible for the disc surface to be both of a random surface roughness and a patterned surface roughness, since these are different embodiments. Claim 3, lines 11-12 and 13-14 contain features that are conflicting/not possible. It is not possible for the wiper to have a leading edge or trailing edge extending across the disc a distance greater than a radius of the rotatable disc surface and at the same time for the wiper to have a leading edge or trailing edge extending across the disc a distance less than a radius of the rotatable disc surface, since these are different embodiments. Claim 3, lines 18-21 contain features that are conflicting/not possible. It is not possible for the wiper to have the leading and trailing edges extending orthogonal to one another, the leading and trailing edges extending at an acute angle to one another, the leading and trailing edges with a convex curvature therebetween, and the leading and trailing edges with a concave curvature therebetween, since these are different embodiments. Claim 3, lines 22-23 contain features that are conflicting/not possible. It is not possible for the wiper to be both at a position extending across an axis of rotation of the disc and

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a position extending aside from an axis of rotation of the disc, since these are different embodiments. Claim 3, lines 24-26 contain features that are conflicting/not possible. It is not possible for the leading or trailing edge to be perpendicular to the rotatable disc surface, and also an inclined angle with respect to the rotatable disc surface, since these are different embodiments. Claim 5, lines 7-8 contain features that are conflicting/not possible. It is not possible for the disc opposing rotatable disc surfaces to both have a same surface roughness and different surface roughness, since these are different embodiments. Claim 5, lines 9-10 contain features that are conflicting/not possible. It is not possible for the opposing rotatable disc surfaces to be both parallel and non-parallel, since these are different embodiments. Claim 5, lines 11-12 contain features that are conflicting/not possible. It is not possible for the rotatable disc surfaces to be both planar and non-planar, since these are different embodiments. Claim 5, lines 13-14 contain features that are conflicting/not possible. It is not possible for the opposing rotatable disc surfaces to be both planar and non-planar, since these are different embodiments. In claim 5, lines 16-17, "interconnected to rotate together at the same speed; rotatable at different speeds" is incomplete and unclear. Claim 8, lines 3-8 contain features that are conflicting/not possible. It is not possible for the hollow cavity of the shaft to be both a straight, constant diameter bore oriented concentric with an axis of rotation of the shaft, a tapered bore with a straight wall in cross-section along an axis of rotation of the shaft, and a tapered bore with a curved wall in cross-section along an axis of rotation of the shaft, since these are different embodiments. Claim 8, the last two lines contain features that are conflicting/not possible. It is not possible for the hollow cavity of the shaft to be both a random surface roughness and a patterned surface roughness, since these are different embodiments. Claim 11, lines 7-10 contain

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features that are conflicting/not possible. It is not possible for the leading or trailing edge to be flat and oriented parallel with an axis of rotation of the shaft, and the leading or trailing edge to have a concave curvature, and the leading or trailing edge to have a convex curvature, since these are different embodiments. Claim 11, lines 11-12 and 15-16 contain features that are conflicting/not possible. It is not possible for the leading or trailing edges to both have a same surface roughness and a different surface roughness, since these are different embodiments. Claim 11, lines 7-8 and 13-14 contain features that are conflicting/not possible. It is not possible for the leading or trailing edge to be flat and oriented parallel with an axis of rotation of the shaft, and to for the impeller blades to be curvilinear with a curvature in a plane perpendicular to the axis of rotation of the shaft, since these are different embodiments. Applicant should carefully review the claims to ensure that no combination(s) of features are conflicting or not possible. One suggestion is to change "at least one feature" to -- a feature -- in the above appropriate claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, and 15 (as far as claims 2-3 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Mauron 1,586,160. Note the pump housing with inlet

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d, outlet e, unnumbered fluid passage, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a wiper c extending partially across at least one rotatable disc surface of a rotatable disc a, the disc surface including arcuate blades a' extending from the disc surface and oriented spirally, with the wiper having a position extending aside from an axis of rotation of the disc, motor h operatively coupled to the disc, and opposing wall p that opposes the wiper, with the wiper, opposing wall, and rotatable disc together defining at least a portion of the fluid passage.

Claims 1-3, 7, and 15 (as far as claims 2-3 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Turner 3,535,051. Note the pump housing with inlet 14, outlet 6a, unnumbered fluid passage, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a wiper 7a, 8a extending partially across at least one rotatable disc surface of a rotatable disc 10, the disc surface including channels 22 extending into the disc surface and oriented radially with respect to an axis of rotation of the rotatable disc, with the wiper having a position extending aside from an axis of rotation of the disc, a motor operatively coupled to the disc, and opposing wall 6 that opposes the wiper, with the wiper, opposing wall, and rotatable disc together defining at least a portion of the fluid passage.

Claims 1-5, 7, and 15 (as far as claims 2-3 and 5 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Caldwell 3,250,458. Note the pump housing with inlet 23, outlet 27, unnumbered fluid passage, and means for both transferring rotational

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movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including wipers 45, 47 extending partially across at least one rotatable disc surface of a rotatable disc 79, 81, the disc surface including ridges 87, 89 extending from the disc surface and oriented radially with respect to an axis of rotation of the rotatable disc, with the wipers having a leading and trailing edge extending across the disc a distance less than a radius of the rotatable disc surface, the leading edge and trailing edge having a curvature in a plane parallel with the rotatable disc surface, the leading and trailing edges having a convex curvature therebetween, with a position extending aside from an axis of rotation of the disc, the leading and trailing edge being perpendicular to the rotatable disc surface, a motor 29 operatively coupled to the disc, and opposing wall 67 that opposes the wiper, with the wiper, opposing wall, and rotatable disc together defining at least a portion of the fluid passage.

Claims 1-5, 7, and 15 (as far as claims 2-3 and 5 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Mase 4,668,160. Note the pump housing with inlet 1A, outlet 1B, unnumbered fluid passage, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including wipers 8, 5B extending partially across at least one rotatable disc surface of a rotatable disc 4A, 5A, the disc surface including ridges 7, 9 extending from the disc surface and oriented radially with respect to an axis of rotation of the rotatable disc, with the wipers having a leading and trailing edge extending across the disc a distance less than a radius of the rotatable disc surface, the leading edge and trailing edge having a curvature in a plane parallel with the rotatable disc surface, the leading and trailing edges having a convex curvature therebetween, with a position

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extending aside from an axis of rotation of the disc, the leading and trailing edge being perpendicular to the rotatable disc surface, a motor 6 operatively coupled to the disc, and an unnumbered opposing wall that opposes the wiper, with the wiper, opposing wall, and rotatable disc together defining at least a portion of the fluid passage.

Claims 1-7 and 15 (as far as claims 2-3 and 5 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Narita 4,732,529. Note the pump housing with inlet A, outlet B, unnumbered fluid passage, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including wipers 3a, 3b extending partially across at least one rotatable disc surface of a rotatable disc 2a, 2b, the disc surface including ridges 2I extending from the disc surface and oriented radially with respect to an axis of rotation of the rotatable disc, with the wipers having a leading and trailing edge extending across the disc a distance less than a radius of the rotatable disc surface, with a position extending aside from an axis of rotation of the disc, the leading and trailing edge being perpendicular to the rotatable disc surface, a motor operatively coupled to the disc, and an unnumbered opposing wall that opposes the wiper, with the wiper, opposing wall, and rotatable disc together defining at least a portion of the fluid passage. The unnumbered inlet passage and unnumbered outlet passage are perpendicular to the disc surface.

Claims 1-3, 7, and 15 (as far as claims 2-3 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Hartman 2,245,035. Note the pump housing with an inlet near 33, an outlet 53, unnumbered fluid passage, and means for both transferring

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rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a wiper 21 extending partially across at least one rotatable disc surface of a rotatable disc 41, the disc surface including arcuate blades 42 extending from the disc surface and oriented spirally, with the wiper having a position extending aside from an axis of rotation of the disc, motor 13 operatively coupled to the disc, and opposing wall 19 that opposes the wiper, with the wiper, opposing wall, and rotatable disc together defining at least a portion of the fluid passage.

Claims 1-3, 7, and 15 (as far as claims 2-3 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Villard 4,242,039. Note the pump housing with an inlet near 11, an outlet 12, unnumbered fluid passage, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a wiper 13 extending partially across at least one rotatable disc surface of a rotatable disc 14, the disc surface including arcuate channels 40 extending into the disc surface, with the wiper having a channel 36, 38 extending into the wiper opposite the rotatable disc surface, and a position extending aside from an axis of rotation of the disc, motor 2 operatively coupled to the disc, and opposing wall 15 that opposes the wiper, with the wiper, opposing wall, and rotatable disc together defining at least a portion of the fluid passage.

Claims 1-9, and 13 (as far as claims 2-3, 5, and 8 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Negishi 5,297,926 (figures 3, 6a, and 6b). Note the pump housing 5 with an unnumbered inlet, an outlet 6, unnumbered fluid passage, and

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means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a rotatable shaft 9 with a hollow cavity extending from one end to at least one unnumbered slot extending radially from the hollow cavity, with the hollow cavity of the shaft having a straight, constant diameter bore oriented concentric with an axis of rotation of the shaft, with plural slots laterally adjacent one another and disposed circumferentially around the shaft, and volute 5 disposed around the shaft at the at least one slot. Concerning claims 2-7, these claims are still met due to the Markush language in claim 1 of "selected from the group consisting of: 1) a wiper extending partially across at least one rotatable disc surface of at least one rotatable disc; and 2) a rotatable shaft with a hollow cavity extending from one end to at least one slot extending radially from the hollow cavity."

Claims 1-9 (as far as claims 2-3, 5, and 8 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Kardas 4,452,566. Note the pump housing 10 with an inlet 16, an outlet 48, unnumbered fluid passage, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a rotatable shaft 44 with a hollow cavity extending from one end to at least one slot near 36 extending radially from the hollow cavity, with the hollow cavity of the shaft having a straight, constant diameter bore oriented concentric with an axis of rotation of the shaft, with plural slots laterally adjacent one another and disposed circumferentially around the shaft.

Concerning claims 2-7, these claims are still met due to the Markush language in claim 1 of "selected from the group consisting of: 1) a wiper extending partially across at least one rotatable disc surface of at least one rotatable disc; and 2) a rotatable shaft with a hollow cavity

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extending from one end to at least one slot extending radially from the hollow cavity.”

Claims 1-12, and 16 (as far as claims 2-3, 5, 8, and 11 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Eskeli 3,828,553. Note the pump housing 10 with an unnumbered inlet adjacent 20, an outlet 19, a fluid passage 15, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a rotatable shaft 12/14 with a hollow cavity (near 18) extending from one end to slots 22 extending radially from the hollow cavity, with the hollow cavity of the shaft having a straight, constant diameter bore oriented concentric with an axis of rotation of the shaft, with the plural slots 22 laterally adjacent one another and disposed circumferentially around the shaft. A portion of the shaft laterally adjacent to the slot defines impeller blades 18 formed within a circumference of the shaft. The impeller blades are laterally adjacent one another and disposed circumferentially around the shaft. The leading and trailing edges of the blades are flat and oriented parallel with the axis of rotation of the shaft. The impeller blades extend into the hollow interior. An end surface of the hollow cavity proximate the slots 22, has a protrusion 18 to guide flow to the slots. Also disclosed is a pump device, comprising the pump housing 10, the rotatable shaft 12/14, rotatably disposed in the housing, the hollow cavity (near 18), formed in the shaft, an aperture 20 formed in an end of the shaft defining an inlet to the hollow cavity, the plural slots 22 formed in the shaft and extending from an outer surface of the shaft to the hollow cavity and defining a fluid passage and an outlet from the hollow cavity, and defining the plural impeller blades 18 between the plurality of slots and within a circumference of the shaft, and a bearing 24 carrying the shaft

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and disposed between the housing and the shaft. Concerning claims 2-7, these claims are still met due to the Markush language in claim 1 of "selected from the group consisting of: 1) a wiper extending partially across at least one rotatable disc surface of at least one rotatable disc; and 2) a rotatable shaft with a hollow cavity extending from one end to at least one slot extending radially from the hollow cavity."

Claims 1-11, and 16 (as far as claims 2-3, 5, 8, and 11 are definite and understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Valley 590,247. Note the pump housing B6 with an unnumbered inlet adjacent M, an outlet A, an unnumbered fluid passage, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a rotatable shaft b/B2 with a hollow cavity (near B3) extending from one end to slots B3 extending radially from the hollow cavity, with the hollow cavity of the shaft having plural spiral blades B2 extending from the inner surface, with the plural slots laterally adjacent one another and disposed circumferentially around the shaft. A portion of the shaft laterally adjacent to the slot defines impeller blades B2 formed within a circumference of the shaft. The impeller blades are laterally adjacent one another and disposed circumferentially around the shaft. The leading edges of the blades are convex and trailing edges of the blades are concave. The impeller blades are curvilinear with a curvature in a plane perpendicular to the axis of rotation of the shaft. The impeller blades extend into the hollow interior. Also disclosed is a pump device, comprising the pump housing B6, the rotatable shaft b/B2, rotatably disposed in the housing, the hollow cavity (near B3), formed in the shaft, an unnumbered aperture formed in an end of the shaft defining an inlet to the hollow

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cavity, the plural slots B3 formed in the shaft and extending from an outer surface of the shaft to the hollow cavity and defining a fluid passage and an outlet from the hollow cavity, and defining the plural impeller blades B2 between the plurality of slots and within a circumference of the shaft, and a bearing y2 carrying the shaft and disposed between the housing and the shaft. Concerning claims 2-7, these claims are still met due to the Markush language in claim 1 of "selected from the group consisting of: 1) a wiper extending partially across at least one rotatable disc surface of at least one rotatable disc; and 2) a rotatable shaft with a hollow cavity extending from one end to at least one slot extending radially from the hollow cavity."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 13-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eskeli 3,828,553 in view of Negishi 5,297,926. Eskeli discloses a pump device substantially as claimed as set forth above, including a housing/intermediate member 10 disposed around the shaft at the slots, a motor 13, operatively coupled to the shaft 12/14, a pair of bearings 12, 21 that carry the shaft and are disposed on opposite sides of the slots, with the intermediate member disposed between the pair of bearings and located around the shaft at the slots. The intermediate member has an unnumbered cavity that extends uninterrupted to the outlet.

However, Eskeli does not disclose that the housing is a volute (claims 13, 14, and 17).

Negishi (figures 3, 6a, and 6b) shows a pump housing 5 with an unnumbered inlet, an outlet 6, an unnumbered fluid passage, and means for both transferring rotational movement to the fluid by viscous forces and imparting centrifugal forces to the fluid, including a rotatable shaft 9 with a hollow cavity extending from one end to at least one unnumbered slot extending radially from the hollow cavity, with plural slots laterally adjacent one another and disposed circumferentially around the shaft. A volute 5 is disposed around the shaft at the at least one slot, for the purpose of decreasing the velocity of fluid in the pump towards the outlet.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the pump of Eskeli such that the housing is a volute, as taught by Negishi, for the purpose of decreasing the velocity of fluid in the pump towards the outlet.

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Claim 14 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Negishi 5,297,926. Negishi discloses a pump device substantially as claimed as set forth above, including a motor M coupled to the shaft, with an intermediate member 5 defining a volute around the shaft at the at least one slot, but does not disclose a pair of bearings carrying the shaft and disposed on opposite sides of the at least one slot.

Official Notice is taken that pumps with bearings that support a shaft and that are located such that the bearings are on opposed sides of an impeller of the shaft and thus on opposed sides of the shaft are conventional and well-known in the art of pumps, for the purpose of rotatably supporting the shaft.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the pump of Negishi such that it includes a pair of bearings carrying the shaft and disposed on opposite sides of the at least one slot, for the purpose of rotatably supporting the shaft.

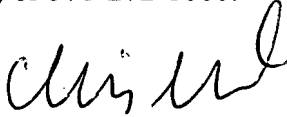
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.
June 29, 2007



Christopher Verdier
Primary Examiner
Art Unit 3745